THE BASICITY AND ACIDITY OF BETA ZEOLITES AFTER ION-EXCHANGE

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ABSTRACT

The structure, basicity and acidity properties of the alkali metals (Na, K and Cs) exchanged zeolite beta were investigated in this work. Infrared (IR) and X-ray diffraction (XRD) were used for structural characterizations, while Temperature programmed desorption of CO2 and NH3 were use for the determination of basicity and acidity, respectively. Results reveal that the framework structure of zeolite beta is retained after the exchange but with a successive decrease in the relative crystallinity after the modification. The acidity of zeolite beta has decreased significantly with the decrease in the crystallinity. However, the basicity after the exchange was not very significant in comparison to the acidity. The effect of the crystallinity and the type of alkali metal cations on basicity is also shown.